

# Using Evidence To Improve Public Health Infrastructure: *Let the evidence guide our actions*

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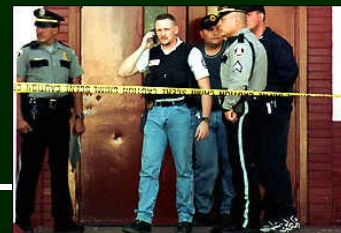


If we did not respect the  
evidence, we would have  
very little leverage in our  
quest for truth

Carl Sagan

# Key Impacts on Public Health Infrastructure

- Bt/ other terrorism threats
- BT funding
- State and local government deficits
- Increasing public concerns
  - Obesity
  - Violence
  - Substance Abuse
  - Social determinants of ill-health and injury
  - Large health disparities



## Determinants

EQUITY AND  
JUSTICE

PHYSICAL  
ENVIRONMENT

SOCIAL  
RESOURCES

# What works to improve the public's health?

- Good news
  - Strong evidence on the effect of many policies/ programs aimed to improve public health
  - Major efforts underway to assess the body of evidence for wide range of public health interventions

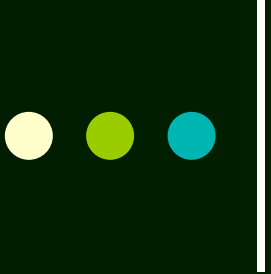


# What works to improve the public's health?

## ○ Bad news

- Many public health professionals are unaware of this evidence
- Some who are aware don't use it
- Many existing programs have insufficient evidence –while others with same goals/ objectives have evidence of effectiveness
- Lack of use of effective interventions can adversely affect fulfilling mission and getting public support





# How do we know what works in improving the health of populations?

## Background

- Many community health improvement efforts have not achieved desired results
- Interventions often chosen based on opinions and personal preferences
- Evidence based medicine---Clinical Preventive Services Task Force –mid 80s
- Evidence based population health --- Community Preventive Services Task Force— mid 90s



# Task Force on Community Preventive Services

## Members

- Jonathan C. Fielding, Chair
- Patricia Dolan Mullen, Vice-chair
- Noreen M. Clark
- John M. Clymer
- Mindy T. Fullilove
- Alan Hinman

- George J. Isham
- Robert L. Johnson
- Garland Land
- Patricia A. Nolan
- Dennis E. Richling
- Barbara K. Rimer
- Steven Teutsch

## Consultants

Robert S. Lawrence  
J. Michael McGinnis  
Lloyd F. Novick



# Goals

- Conduct careful analytic reviews of acceptable evidence for population health interventions and make related recommendations
- Use peer reviewed literature
- Standard rules of evidence
- Standard rules for translating evidence into recommendations



# Community Guide Topics

## ***Environmental Influences***

- Sociocultural Environment

- Physical Environment

## ***Risk Behaviors***

- Tobacco Use
- Alcohol Abuse/Misuse
- Other Substance Abuse
- Poor Nutrition
- Inadequate Physical Activity
- Unhealthy Sexual Behaviors

## ***Specific Conditions***

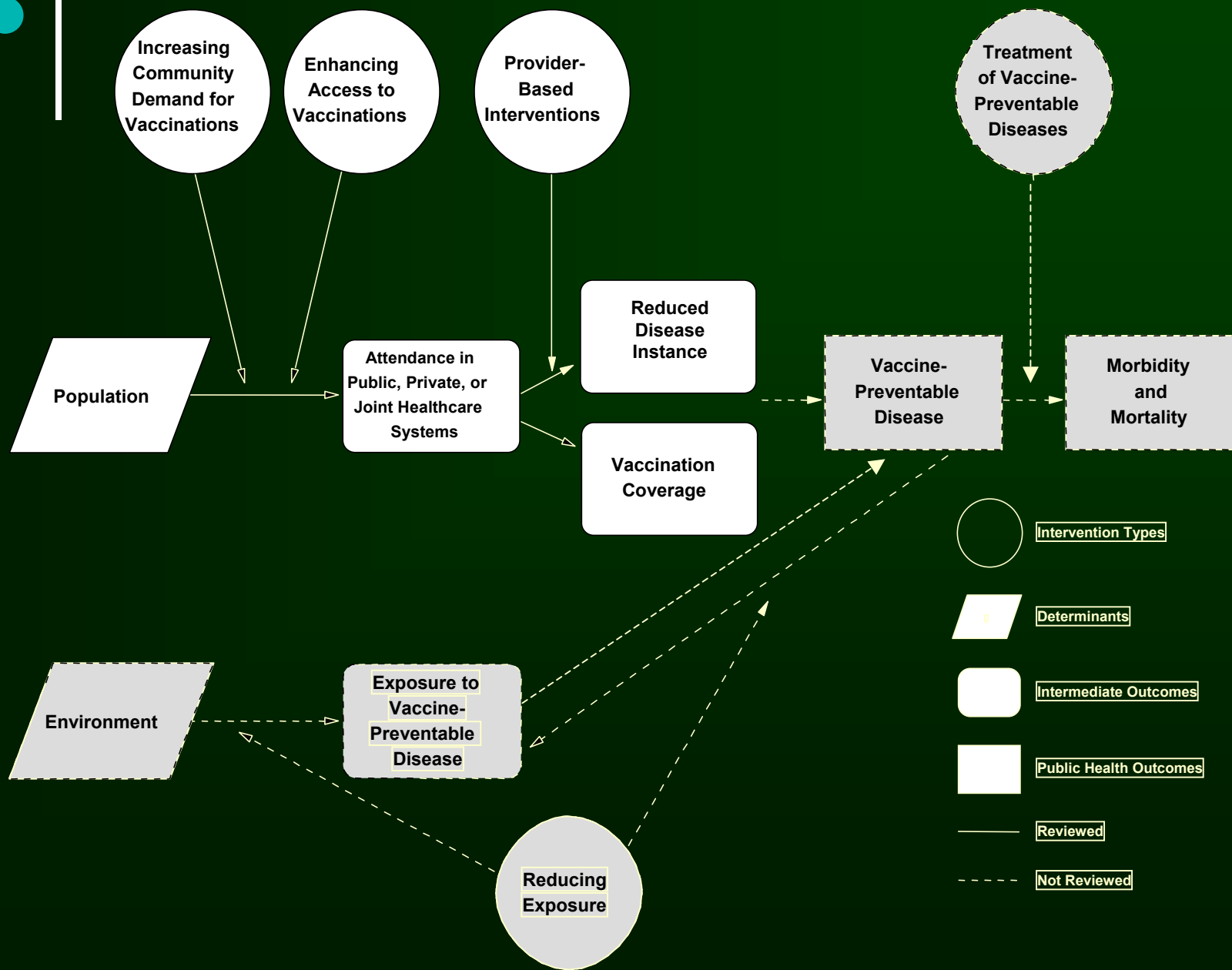
- Vaccine Preventable Disease
- Pregnancy Outcomes
- Violence
- Motor Vehicle Injuries
- Depression
- Cancer
- Diabetes
- Oral Health



# Methods for Systematic Reviews of Effectiveness Evaluations

- Develop conceptual framework
- Search for and retrieve evidence
- Rate quality of evidence
- Summarize evidence
- Translate strength of evidence into finding
  - *Strongly recommended*
  - *Recommended*
  - *Insufficient evidence*

# Logic Framework: Vaccine Preventable Disease





# Standardized Analysis Process

- Systematic review of literature
- Abstracting of relevant studies
- Grading of evidence
  - Study design
  - Execution
- Translating from quality of evidence to recommendations
- Economic analysis
- Other benefits and harms

# Physical Activity: Review of One Intervention



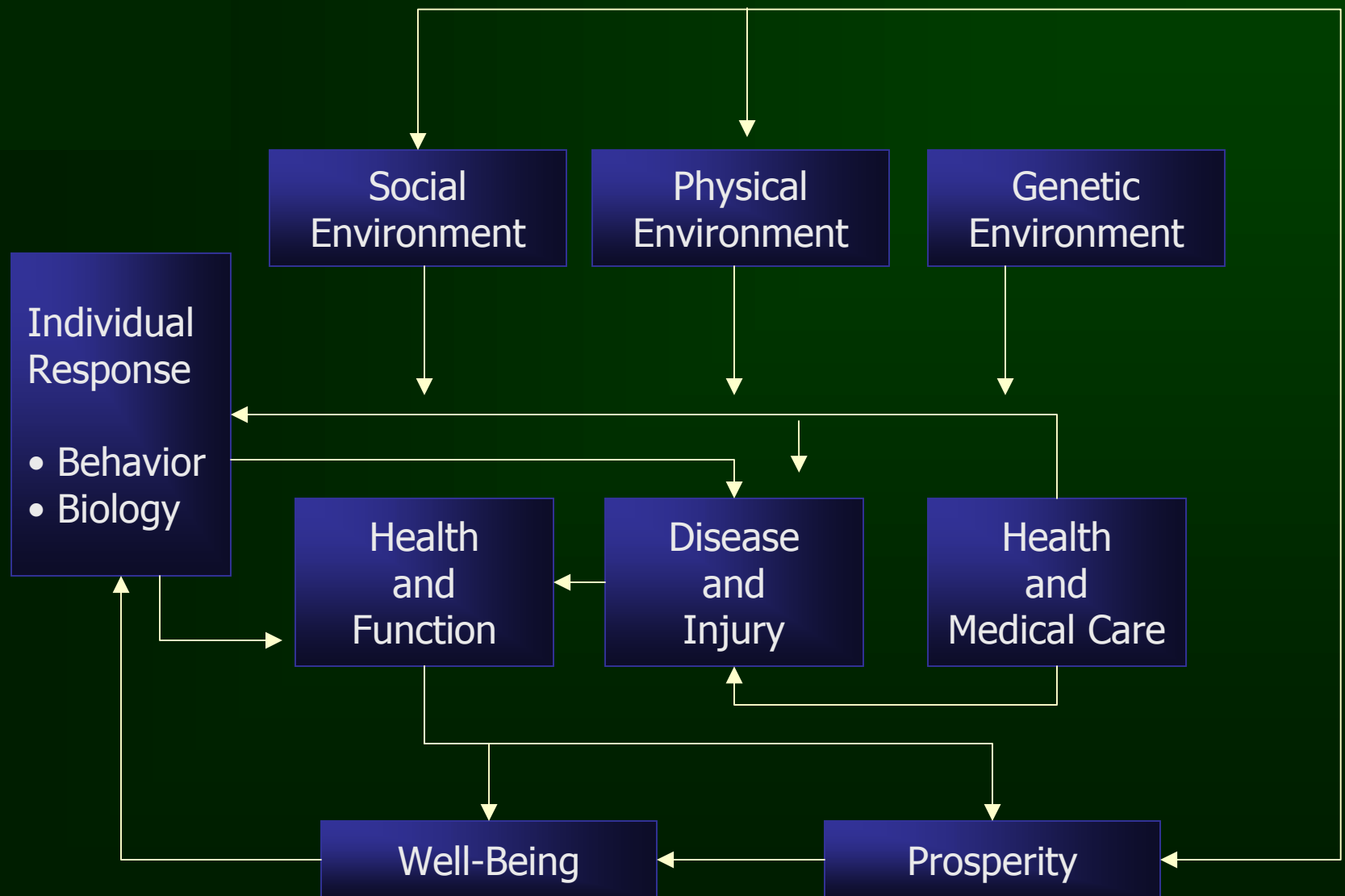
- Goal: increase the amount of time students spend doing moderate or vigorous activity in PE class through curricular change
- Interventions reviewed included changing the activities taught (e.g., substituting soccer for softball) or modifying the rules of the game so that students are more active (e.g., in softball, have the entire team run the bases together when the batter makes a base hit). Many interventions also included health education.

# School Curricular Interventions to Improve Physical Fitness



- 14 acceptable studies; in all students' physical fitness improved.
- 5 studies measured activity levels during PE class; all found increases in 1) amount or percentage of time moderately/ vigorously active and/or 2) intensity level of physical activity during class.
- Median estimates--modifying school PE curricula as recommended will result in an 8% increase in aerobic fitness
- Modifying school PE curricula was effective across diverse racial, ethnic, and socioeconomic groups, among boys and girls, elementary- and high-school students, and in urban and rural settings.
- In a separate literature review, having students attend school PE classes was not found to harm academic performance.

# Need to Address Underlying Health Determinants



# Impact of Early Childhood Home Visitation Programs



- Program can prevent child maltreatment in high-risk families.
  - In studies reviewed, home visiting resulted in a 40% reduction in child maltreatment episodes.
  - Longer duration programs produce larger effects; programs of less than 2 years duration did not appear to be effective.
- Professional home visitors may be more effective than trained paraprofessionals
  - but longer-duration programs with trained paraprofessionals can also be effective.

# Impact of Early Childhood Home Visitation Programs

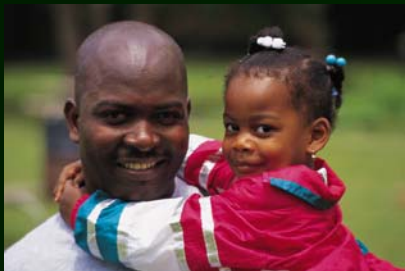


- All programs reviewed were directed at families considered to be at high risk of child maltreatment, (e.g., single or young mothers, low-income households, families with low birth weight infants).
- Other benefits
  - Health benefits for premature, low birth weight infants and for disabled and chronically ill children
  - Improved maternal educational attainment, reduce public support, improved child educational performance, reduction in drug use and contact with juvenile justice etc.

# Tenant-based Rental Voucher Programs

## ○ Background

- Tenant-based vouchers allows very low income families to rent safe, decent, and affordable privately owned housing in neighborhoods of their choice.
- Rental voucher programs, known as “housing mobility programs,” work with landlords and tenants to find rental property outside of neighborhoods of concentrated poverty and relocate families to neighborhoods of greater prosperity.



# Tenant-based Rental Voucher Programs

## ○ Findings from the Systematic Review

- 6 studies: rental voucher programs resulted in decreases in victimization of tenants or their property
- Families enrolled in rental voucher programs who moved to better areas 6% less likely to have a household member victimized and 15% less likely to experience neighborhood social disorder.
- Changes in victimization in both urban and suburban settings.
- Other benefits: substantially reduced symptoms of maternal depression, boys' behavioral problems in school, and childhood illnesses and accidents requiring medical attention.





# TASK FORCE REVIEWS AND RECOMMENDATIONS

[www.thecommunityguide.org](http://www.thecommunityguide.org)

But remember, insufficient  
evidence does not mean  
intervention is not effective—it  
means we don't know

# How Evidence Can Improve Public Health Infrastructure

- Explore evidence underlying options to reach each public health goal
  - e.g. smoking control, reducing disparities in infant mortality, increasing physical activity, increasing immunization rates
- Use evidence to decide among possible interventions
  - show interventions for a particular problem—those with different levels of recommendations based on evidence



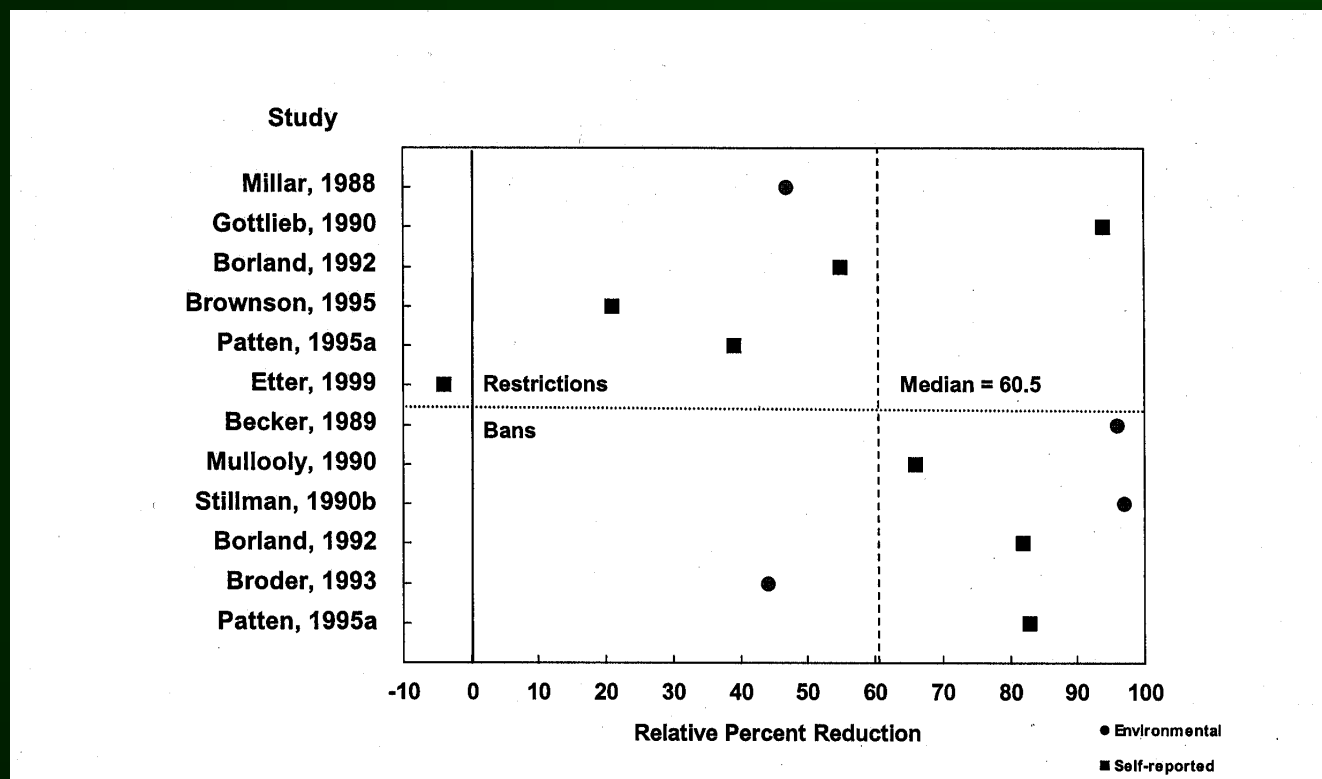
# How Evidence Can Improve Public Health Infrastructure

- Use evidence to help decide on construction of intervention
- Use evidence to help decide on partnerships needed for successful intervention
  - vaccine preventable diseases as an example



# How Evidence Can Improve Public Health Infrastructure

- Use evidence to determine realistic goals by estimate effect size (i.e.. how much you move the needle!)



Relative percentage changes in exposure to environmental tobacco smoke attributable to workplace smoking bans and restrictions from studies that qualified for inclusion in this review ("a" and "b" in Study names refer to first or second study by the same author in that year, included in this review)

# How Evidence Can Improve Public Health Infrastructure

- Use evidence to frame evaluation
  - approach/ measures etc.
- Use evidence to determine measurable performance objectives-





# What more is needed?

- More research on public health practice; for many interventions---insufficient evidence
- Increased funding for Community Guide activity
- Doubling of CDC budget
- More training on appropriate sources and uses of evidence
  - in schools of public health and others training public health professionals
  - in public health practice settings e.g. state and local health departments
- Political leaders and others who influence the decision making process to improve health



# Presentation available via the Internet

- <http://lapublichealth.org/usingevidencefielding.ppt>